Handout for MATH 1300 (Barsamian) Lecture L31 Mon Oct 26, 2026 Section 4.3, 4.4

[1] (a) Sketch $\frac{7\pi}{4}$ radiansand $\frac{7\pi}{4} - 4\pi$ radians in standard position.

(b) Find $\sin\left(\frac{7\pi}{4}\right)$ and $\sin\left(\frac{7\pi}{4} - 4\pi\right)$, exact values

(c) Choose the correct statement.

For any angle θ measured in radians, always $\sin\left(\frac{7\pi}{4}\right) \neq \sin\left(\frac{7\pi}{4} - 4\pi\right)$.

For some but not all angles θ measured in radians, $\sin\left(\frac{7\pi}{4}\right) = \sin\left(\frac{7\pi}{4} - 4\pi\right)$.

For any angle θ measured in radians, always $\sin\left(\frac{7\pi}{4}\right) = \sin\left(\frac{7\pi}{4} - 4\pi\right)$.

[2] (a) Sketch angles $-\frac{3\pi}{4}$ and $\frac{3\pi}{4}$ radians in standard position

(b) Find $\sin\left(-\frac{3\pi}{4}\right)$ and $\sin\left(\frac{3\pi}{4}\right)$, exact values

(c) Choose the correct statement.

For any angle θ, we have $\sin(-\theta) = \sin(\theta)$. (So sine is an even function.)

For any angle θ, we have $\sin(-\theta) = -\sin(\theta)$. (So sine is an odd function.)

Neither of the above answers are true. (So sine is neither odd nor even.)

[3] (a) indicate whether $f(x) = \csc(x)$ and $g(x) = \cos(x)$ are odd, even, or neither

(b) find $\csc(-107°)$ and $\cos\left(-\frac{8\pi}{11}\right)$ in terms of the same functions but with positive argument

[4] A right triangle has side lengths 8, 15, and 17 has angle M at the vertex where the sides of length 8, 17 meet. Find $\tan(M)$, $\cos(M)$, and $\sin(M)$.

[5] A right triangle has legs a, b, and hypotenuse c. Angle x is at the intersection of the sides b,c. Find $\sin(x)$, $\cos(x)$, and $\tan(x)$.

[6] In a right triangle, angle θ has opp=5; adj=3. Sketch the triangle, then find $\sin(\theta)$. (exact value)

[7] In a right triangle, angle θ has opp=8, hyp=11. Sketch the triangle, then find $\cot(\theta)$, $\sin(\theta)$, and $\csc(\theta)$ (exact values).

[8] in a right triangle, an angle of measure $55°$ has $\text{adj} = 11$ and $\text{hyp} = x$ Sketch the triangle, then find x (exact value).

[9] Sketch $\theta = -\frac{23\pi}{6}$ in standard position. Then show its reference angle.

[10] (a) Point $(-6,8)$ is on the terminal side of angle θ .Find exact values of $\sin(\theta)$, $\csc(\theta)$, and $\cot(\theta)$.

(b) θ is an angle in quad 3 such that $\cos(\theta) = -\frac{15}{17}$. Find exact values of $\csc(\theta)$ and $\tan(\theta)$.

(c) θ is an angle in quad 4 such that $\csc(\theta) = -\frac{5}{2}$. Find exact values of $\tan(\theta)$ and $\cos(\theta)$.